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2 Arab Money To Vitalize Sudan Agriculture

5 Japan Poultry Consumption, Broiler Output Up

6 Trends in Europe's Feed Industry: Policy and Problems

9 Soggy Crackers? Call the 'Biscuit Man'

10 USSR Expects Bumper Grain Crop

A Sudanese scientist performs tests that may result in better finishing of leather for export.

Arab Money To Vitalize Agriculture in Sudan

By Ahmed Abou-Bakr

One of the last agricultural frontiers in the world, Sudan has moved into the spotlight recently as a result of far-reaching Arab plans to make it the breadbasket of North Africa and the Mideast. This first article of a two-part series on Sudan takes a look at the country's agricultural potential and development plans; the second will focus on results achieved so far.

With the help of Arab oil money and expertise, Africa's largest nation, Sudan, is awakening to its great agricultural potential. Indeed, the billions of petrodollars now being funneled in could make that country to northern Africa and the Mideast what Brazil already is to South America—an agricultural production and export center and increasingly important competitor in world markets for cotton, grain, sugar, oilseeds, livestock products, and fruits and vegetables.

This suddenly increased interest in a nation long in the backwater of African development derives in large part from Arab worries about future sources of food supplies. As the only Moslem nation in black Africa, Sudan has strong religious ties with most of the Arab world. And it has the land and resources needed to support extensive agricultural development.

Sudan boasts, for instance, the largest land area in Africa but one of the smallest land/inhabitant ratios in the world; almost as much cultivable land as the European Community; water from two branches of the Nile; and a location convenient to most nations of the Mideast. With such resources, the Arab nations reason, Sudan someday might supply most of their food needs, while also providing living space and jobs for workers from nearby Egypt, with its crowding population and high level of unemployment.

Prior to 1956, in contrast, Sudan was still only the underdeveloped Anglo-Egyptian condominium of Sudan, and little was known about its abundant resources. The November 25, 1975, *Wall Street Journal* quoted an Englishman describing Sudan in the 19th century this way: "For God-forsaken, dry-sucked, fly-blown wilderness, commend me to the Upper Nile, a desolation of desolations, an infernal region, a howling waste of weed, mosquitoes, flies and fever. I have passed through it, and now have no fear of the hereafter."

Almost a century later, in 1959, a British reporter said of Sudan: "A stranger would notice the white cotton robes and turbans of parties visiting nearby villages, the important personage riding his large white donkey, the others on smaller donkeys, dangling their slippers from their toes." North of Khartoum, he said, were just a few camels grazing the thorn trees in the dry stream beds. South of Khartoum was scrub pasture for sheep and goats.

Much of the Sudan of today remains true to these descriptions, but now there is a sense of the country's future importance as an agricultural producer and exporter, plus ambitious projects to bring this potential to fruition.

For instance, the Arab Authority for Agricultural Investment and Development, an investment group made up of petroleum-producing Arab nations, in 1975 concluded a $5.7-billion agreement with the Government of Sudan to develop all sectors of the economy over the next 10 years. The plan concentrates on agriculture, earmarking close to $3 billion for that

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Dr. Abou-Bakr—an agricultural economist with the Foreign Demand and Competition Division of the Economic Research Service—gathered information for the article during a 7-week country-market study in the Mideast during early 1977. Together with H.C. Treakle of ERS, he is now preparing an in-depth study of Sudan's agricultural and trade potential.

Clockwise from top left: Sudanese workers pick cotton, the top farm export. Camels, Sudan's traditional beasts of burden, graze on lands that someday may be taken over by modern livestock farms or crop production. Workers lay pipe for a new irrigation project destined to open more land to cultivation.

sector alone. And this is only the first step of a 25-year investment program involving over 100 projects in crop production, animal husbandry, agro-industry, and transportation.

Basically, the interests of the Authority are:

- Securing a reliable source of food and other agricultural products and reducing the Arab world's[1] reliance on foreign sources of such products;
- Developing a wide market for Sudanese agricultural exports in exchange for agricultural inputs such as fertilizers, chemical pesticides, tools, equipment, and machinery;
- Expanding opportunities for the Authority's participation in investments in agriculture and agro-industries with remunerative commercial returns.

This Sudanese project represents the first activity of the Authority since its formation in 1975. In addition, the Arab Organization for Agricultural Development—an Arab league affiliate—is studying four projects. According to the Director General, Maheb Zaki, the largest of the four projects would involve developing 2.4 million hectares of fertile, largely unused land along the Blue Nile. A $75-million program would bring 400,000 hectares of this land into cattle production.

Triad Natural Resources (Sudan) Ltd. is launching a $93-million cattle development project on around 500,000 hectares in the same area. The range would handle 68,000 cattle and 18,000 sheep, and would be managed by the subsidiary of a U.S. land and cattle company.

Agricultural resources. The appeal of Sudan to these investors is obvious. The country has a land area totaling over 2.5 million square kilometers, or about three-quarters as much as India, a third as much as the United States, and 8.3 percent of all land area in Africa. Its population, on the other hand, is just 17 million, for a land/inhabitant ratio of under 7 people per square kilometer.

Agriculture in Sudan is characterized by vast areas of underutilized, fertile land, with adequate rainfall in the southern half of the country and great potential for agricultural development. Much of this land is fertile plains, watered by two branches of the Nile: The sluggish White Nile flowing from the huge lakes of Uganda and the Blue Nile from the mountains of Ethiopia.

Based on Sudanese Government estimates, arable land totals about 84 million hectares, but only 6.3 million are now under cultivation. Of these 6.3 million hectares, about 1.3 million are irrigated, providing most of the cotton and sorghum that moves into export. This irrigated cropland about equals all cropland in Maryland, whereas nonirrigated area is comparable to total cropland in Texas. Around 10 percent

[1]**Countries included in this grouping are Egypt, Lebanon, Jordan, Syria, Iraq, United Arab Emirates, Saudi Arabia, Kuwait, Yemen, South Yemen, Morocco, Tunisia, and Algeria.**

of nonirrigated land under cultivation is in pastures, and the rest, in crops that do well on rainfed land, mainly grains and oilseeds.

The Government asserts that close to 2.5 million additional hectares are suitable for irrigated agriculture and 31 million hectares of rainfed lands could be put into crops. The 40 million acres remaining of the cultivable area is largely potential pastureland or marginal cropland.

Although operating far below its possibilities, agriculture already is the mainstay of Sudan's economy. Over 95 percent of the country's exports are of agricultural origin, with shipments of cotton and peanuts in 1970-75—the two leading exports—respectively accounting for 3-6 percent and 7-15 percent of annual world trade in these products.

So far, Arab investments have been funneled largely into Sudan's intensive system of land use in the form of irrigation or large - scale mechanized rainfed farming schemes.

Despite their relatively small share of total land area, the modernized farming systems together account for about 70 percent of Sudan's total farm production. But because of their intensive production, they employ only about 20 percent of the rural population.

The rest of the population is engaged in traditional farming, which is low in productivity and encourages heavy migration from region to region in search of better income opportunities and fresh grazing lands. This migratory labor force, which accounts for about 25 percent of total farm labor, also is kept on the move by substantial income disparities among regions and between urban and rural areas.

A major part of the cultivated area in Sudan depends on rainfall, which varies significantly from month to month and is almost entirely absent during a long dry period that usually extends from the end of October to April. This extreme variation in rainfall puts considerable uncertainty on crop production, making water conservation a key input for satisfactory results.

Crops with short growing cycles and low water requirements can be produced in the central part of the country, but yields are generally low. In the south, rainfall is adequate to support a variety of tropical crops, while in the north, crop production under rainfed conditions is impossible owing to lack of rain.

The Blue and White Nile Rivers are the only sources of flow water for agriculture in northern Sudan, and about 40 percent of the water is lost in the swamp of the Sudd region and to evaporation. The net available average annual river flow is 84 billion cubic meters. Of this, only 25 percent is used in Sudan, while 75 percent goes to Egypt under provisions of the 1959 Nile agreement between the two countries.

Groundwater in Sudan has not been widely explored, and much remains to be learned in this area. Crystalline rock formations provide little water for wells, except for an occasional fracture system, which is usually difficult to detect. However, well water may be obtainable in some areas in central and southern Sudan where the soil is mainly sand and gravel with interbedded clays. In Kordofan and Blue Nile Provinces, the aquifers have recently been developed for village water supplies.

Crop production and trade. Despite these abundant resources, alongside the limited needs of a small population, Sudan is still not self-sufficient in such agricultural products as wheat, sugar, tobacco, tea, and coffee. In 1975, these commodities accounted for about 20 percent of the country's total imports and 98 percent of its agricultural imports; a breakdown of the volume and value of these purchases is given in the following tabulation:

	1,000 metric tons	1,000 U.S. dollars
Sugar	132.0	80,700
Wheat	119.0	19,700
Wheat flour	4.0	463
Rice	9.0	2,910
Tea	10.0	10,115
Coffee	8.0	6,180
Tobacco	1.5	3,444

Source: Current Agricultural Statistics, June 1976, Ministry of Agricultural, Food and National Resources.

The country hopes to attain at least self-sufficiency in these and all other basic food products by 1985. It anticipates, however, going far beyond that goal to produce sizable exportable surpluses of wheat, grain sorghum, sugar, meat, and numerous fruits and vegetables in addition to its traditional exports of cotton and peanuts, cottonseed, and other oilseeds and vegetable oils. The bulk of these exports would move to other Arab nations, with Sudan in some cases ranking as far the largest Arab supplier. For instance, Sudan by 1985 ex-

Continued on page 11

Projected Exports of Major Agricultural Products from Sudan to Arab Nations and Total Imports by Arab Nations, 1985

Commodity	Sudan exports	Arab world imports	Share of total Arab imports
	1,000 m.t.	1,000 m.t.	Percent
Sugar	405	2,000	20
Meat	173	900	19
Fruits and vegetables	205	—	—
Vegetable oil	425	1,000	42

Source: *Agricultural Development—Sudan*, Arab Fund for Economic and Social Development.

Sudan's Exports of Cotton and Oilseed

[In 1,000 metric tons]

Year	Cotton	Oilseeds		
		Peanuts	Sesame	Other
1966-1970	156	91	105	57
1971-1975	192	142	89	37

Source: *Current Agricultural Statistics*, June 1976 Ministry of Agricultural, Food and Natural Resources, Khartoum, Sudan.

Sudanese Production of Basic Agricultural Commodities, 1975, and 1985 Projections

Item	1975	1985	Projected change
	1,000 m.t.	1,000 m.t.	Percent
Wheat	285	973	241
Rice	19	62	226
Millet	400	491	22
Sorghum	1,710	4,861	184
Sugar	128	918	617
Vegetables	718	1,347	88
Fruits	712	1,294	82
Peanuts	930	2,038	119
Sesame	233	425	82
Cottonseed	947	894	-6

Source: Department of Agricultural Economics, Ministry of Agricultural, Food and Natural Resource, Khartoum, Sudan.

Poultry Consumption, Broiler Production Trending Up in Japan

With new limitations on Japanese fishing along U.S. and Soviet shores, poultry meat should become more attractive as a substitute for fish in Japan. Thus, that country's consumption of poultry meat should continue on the upswing this year, according to Larry F. Thomasson, U.S. Agricultural Attaché in Tokyo. Both the USSR and the United States are now restricting foreign fishing within territorial waters, considered to extend 200 miles off their respective shores.

Japanese poultry consumption is projected to jump between 5 and 6 percent—or about 1 pound per capita—in 1977. Helping to meet this increased domestic demand, 1977 broiler production is forecast to stay on a sharp upsurge while total imports of broilers decline slightly. But, imports of turkey and turkey products, enjoying increased consumer acceptance, should continue to rise briskly. Egg production, up last year despite Government's efforts to limit output, will begin to drop this year.

Overall, though, Japan will remain a strong market for exports of U.S. poultry and poultry products, which jumped from $25.1 million in 1975 to $30.5 million last year. During these 2 years, Japan ranked second behind Canada as the leading market for U.S. exports of poultry and poultry products. Total U.S. agricultural exports to Japan stepped up to nearly $3.6 billion in 1976 from almost $3.1 billion a year earlier.

Last year, exports of U.S. poultry and eggs reached a record $251 million, an increase of 63 percent from 1975. These exports included over $126 million in chicken meat. Chicken parts, principally broiler parts, continued to be the top export item in the chicken meat category, accounting for over 50 percent of the export value. Japan was the leading market, taking $20 million worth.

During the first 5 months of 1977, U.S. poultry exports to Japan are up. Latest U.S. export data indicate that exports of chicken parts have totaled $9 million, up 17 percent from the corresponding 1976 period. The largest increase has been in whole broiler exports, up 667 percent to almost $1.6 million. Exports of U.S. fowl during this period have totaled over $1.8 million, a rise of 168 percent.

Japanese broiler production soared in 1976 as producers enjoyed stable feed prices and strong product prices as well as increased per capita consumption. As a result, broiler output jumped 13.7 percent to 700,912 metric tons on a ready-to-cook (RTC) basis. Another sizable increase of about 7-8 percent to the 750,000-ton range is expected this year, reports Thomasson.

Although the Government tried to limit output, egg production—and consumption—increased in 1976. Slight decreases, however, are predicted for 1977. Last year, egg production rose 4 percent to 1.86 million tons, or 30,990 million pieces as consumption edged forward about 3 percent to 32,414 million. The outlook this year calls for an output of 30,800 million pieces and consumption of about 32,000 million.

To avoid market price plunges last year, the quasi-Governmental Egg Liquefying Corporation bought up about 1,300 tons of eggs, selling all as liquid whole eggs at about 300 yen per kilogram (in 1976, the average yen-dollar exchange rate was US$1 = 297 yen).

A survey by the Office of the Prime Minister put per household (approximately 3.8 persons) egg purchases at 42.77 kilograms or 713 pieces in 1976, slightly up from year-earlier levels. And according to a Ministry of Agriculture and Forestry (MAF) estimate, eggs for processing last year equaled about 110,000 tons, in-shell basis. Of this, half went directly to mayonnaise processors; the rest into commercial egg products, with about 78 percent consumed as liquid whole eggs.

As Japan's taste for turkey and turkey products has trended up (from a 1975 consumption of 761 tons to 1,000 last year, and about 1,200 this year), domestic production has gone the other way. Production this year is placed at 350 tons, down from 360 in 1976 and 400 in 1975. The widening gap has meant increased imports, with almost all of these coming from the United States.

Japan's total poultry production, forecast at about 886,000 tons this year, again will not meet the anticipated consumption of almost 926,000 tons.

Last year, Japan's broiler imports zoomed 79 percent to 36,951 tons. The United States supplied 23,559 tons—double its year-earlier level. The market share of the People's Republic of China dropped 18 percent to 4,840 tons while that of Thailand increased almost twelve-fold to 2,030 tons.

Meanwhile, turkey meat imports have continued to mount from 361 tons in 1975 to 661 tons last year. Imports this year are pegged at 800 tons, representing an increase of 122 percent in just 2 years.

All told, Japan's 1976 imports of eggs and egg products declined 1.7 percent to 1.4 billion pieces, shell egg equivalent. Another decrease to about 1.2 billion pieces is forecast for 1977.

As an incentive for increased production, average broiler prices last year in the producer, wholesale, and retail sectors registered gains of 2.1, 6.1, and 15 percent, respectively. Meanwhile, broiler feed prices remained fairly steady, averaging 1,679 yen per 20 kilograms, says Thomasson.

In contrast, the increase in egg output pushed down egg prices. Compared with 1975, last year's average prices to producers, wholesalers, and retailers dipped 3.3, 8.6, and 5.2 respectively.

Last February, the MAF discussed its egg production adjustment policy with representatives of producers and wholesalers. The MAF policy, to be continued in Japan's 1977 fiscal year (April 1977-March 1978), was accepted by producers with small- to medium-sized operations. Large, integrated producers, however, reportedly oppose the MAF scheme.

With the program's eligibility limited to only those producers contributing money jointly with feed manufacturers and the Government, trigger levels for compensatory payment for eggs were raised 2 yen per kilogram to 267 yen in the new fiscal year. Also, the new trigger prices for compensation payments on broilers were upped from 307 yen per kilo in 1976 to 317 yen in 1977. □

Trends in Europe's Feed Industry: Policy and Problems

By Brice K. Meeker

In a speech before the 10th International Congress of the European Federation of Compound Feed Producers at Copenhagen in mid-May, the author discusses the growth in livestock product consumption and the shift of livestock and poultry producers towards use of commercial feedstuffs. He notes that production of corn and soybeans continues its uptrend, making it unlikely that supplies would limit expansion of world livestock industries.

Many factors influence the demand for meat, but the dominant element is the level of income. Per capita gross national product plotted against per capita levels of meat consumption correlates amazingly well.

The problem for the European animal industry is the general slowdown in the rate of economic growth. In the European Community, the percentage change in per capita GNP has been slowing over the past two decades. In the second half of the 1950's, the compound rate of growth in per capita GNP averaged nearly 5 percent. In the first half of the 1960's, the rate had fallen to just under 4.5 percent. By the second half, the average rate had fallen to slightly less than 4 percent and it dropped again in the early 1970's to slightly below 2 percent. percent.

There does not appear to be much optimism that the European average compound growth rate of the 1950's and early 1960's will be re-established over the next decade. However, it is extremely difficult to anticipate the stimulative impact on north European economies of North Sea petroleum and it is possible that this could constitute a significant growth stimulus in the next decade.

Another factor that bears closely on the levels of consumption of animal products is their relative prices.

There is the composite price relationship of animal products—fluid milk, cheese, butter, red meats, and poultry meats as major examples—related to the levels of prices of other goods between which the consumer must allocate his income.

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In the social and economic policy milieu of West European governments and specifically in the European Community, there seems little prospect of a significant decline in the composite price of animal products relative to other goods.

Trends over recent years in per capita consumption of selected animal products test *a priori* views as to the relative expensiveness of various animal products and provides some guidance for the future. Here are simple average annual percentage increases or decreases in per capita consumption in the EC for the 1965-75 period.

	Percent Change
Beef and veal	1.5
Pork	2.1
Mutton, lamb, and goat	-1.6
Total red meats	1.6
Poultry meat	3.9
Total meat	2.0
Cheese	3.8
Eggs	.6
Milk for fluid use	-1.2
Butter	-2.2

On the whole, these data conform to our preconceptions of the relative expensiveness of meats in Europe, with beef and veal being the most expensive and thus slower in consumption growth, and pork the intermediate between the two.

To meet this growing meat consumption, output of the compounding industry in the European Community has rapidly expanded in the 1960-75 period. Over this span of 16 years the annual average rate of growth in mixed feed output in the original six nations of the EC was just over 8 percent. On an index basis with 1960 equal to 100, 1975 production equaled 352. If the enlarged EC is considered, the results are similar, but less dramatic; the average annual rate of growth is about 6.5 percent and the 1975 index stands at 259.

Clearly, these rates of growth exceed the rate of expansion in the gross output of the livestock and poultry industries and must, therefore, represent a significant shift towards the use of commercially prepared feeds vis-a-vis feeds mixed on farms. I estimate that total concentrates fed in the EC-9 in the middle 1970's probably was in the range of 110-115 million metric tons, indicating that commercially compounded feeds accounted for over half of total concentrate feed usage.

For the mid-1960's, my tentative conclusion is that commercially compounded feeds accounted for around 40 percent, or perhaps slightly less, of total concentrates fed.

Thus, the rapid rate of growth in commercially compounded feeds rests to a greater degree upon the shift of livestock and poultry producers to purchased feed inputs than upon the increased demand of these industries for feedingstuffs.

Clearly, the prospect for continued evolution towards greater commercialization in feeding practices varies widely on a country-by-country basis. The Netherlands, for example, where the overwhelming proportion of total concentrates fed is commercially prepared, is in a different situation from France, where farm-prepared feeds remain an important proportion of total concentrate feed usage.

In the Netherlands, growth of the compounding industry rests primarily on the growth in demand for animal products within the Community, plus export demand external to the EC and the competitive efficiency of its animal industries within the regions where they market the bulk of their end products. In France, however, growth in the compounding industry is much less dependent on demand growth for animal products and considerable scope remains for the industry's expansion based on further commercialization of concentrate feed use.

Commercially compounded feeds offer substantially greater scope for economy in the use of cereals than is feasible in feeds prepared on farms.

Direct evidence to this effect exists where data on the ingredient composition of compounded feeds are available over a sufficiently long period. An example again is the Netherlands, where cereals in the late 1950's and early 1960's constituted approximately two-thirds of the ingredients in feeds, and where, in recent years as cereal prices increased relative to other ingredients, cereal use has fallen to less than 40 percent in feeds. The French and Italian industries have expanded more rapidly than those of the other countries in the original EC-6 in the past 15 years, but the same tendency probably exists at least in direction if not magnitude, in the ratio of grains to other ingredients.

The available indirect evidence indicates this tendency. Over the period 1966/67-1976/77, reasonably good data are available on total cereal usage for feed and the apparent consumption of soybean meal. In this period, cereals used for feeding in the original EC-6 grew at the average annual rate of 1.8 percent while the apparent consumption of soybean meal grew at the average annual rate of 8 percent. Soybean meal is not an ideal proxy for measuring the increase in all other ingredient usages in compounded feeds, but indicates the tendency for this to occur as commercially compounded feeds become a larger proportion of total concentrate fed.

What are the prospects for feedstuff availabilities over the next decade or so?

Coarse grain production in the EC-9 increased over the 1960/61-1976/77 period at an annual average rate of 2.5 percent, or in absolute terms about 1.3 million tons per year. Coarse grain consumption for all purposes, feed, industrial use, and so forth, was increasing for the same period in absolute terms by about 1.5 million tons per year. Thus, increased EC-9 requirements for coarse grains have been substantially fulfilled by increased indigenous production.

World coarse grain production in this same period increased at an annual average rate of 2.8 percent or an annual increase of somewhat over 15 million tons. The U.S. increase averaged about 3.8 million tons or about 2.4 percent while other traditional exporters, Canada, Australia, Argentina, and South Africa, accounted for an average annual increase in world coarse grain production of slightly over 1.6 million tons. Relative to the average total production for these countries in the period, this increased yearly increment approximates 4 percent. Western Europe, other than the EC-9, had an average annual increase in coarse grain production of 4.8 percent or about 780,000 tons.

I do not anticipate a dramatic reversal in these long-term trends, although in particular countries or regions these rates may decline. On the other hand, the Economic Research Service has estimated that the U.S. maize crop could be expanded by about a third by the middle 1980's, given adequate economic incentives. Brazil could become a significant maize exporter over the next decade, and Argentina, if present Government policies are sustained, could significant maize exporter over the next decade, and Argentina, if present Government policies are sustained, could significantly expand grain production.

In short, limitations on expansion of the world's and specifically Western Europe's animal industries over the next decade or so seem extremely unlikely to occur as a result of relatively increased costs of cereals for feeding purposes, assuming that the agricultural income support policies of West European governments will not make cereals relatively more costly in the future.

Turning to feed ingredients other than the cereals: over the past 5 years, 1972-76 world production of the major protein meals averaged about 63 million tons (expressed in terms of 44 percent soybean meal equivalent—SME), as shown in the table.

However, world exports averaged in the same period about 27.6 million tons (SME). Of this total, soybeans and meal amounted to 19.8 million tons, or about 72 percent of the volume moving into trade. Given the dominance of soybeans in world meal production, and even more so in world trade, the

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future prospects for soybean production thus seem to be the key to future world protein feed availabilities.

Considerable production potential exists in Brazil, which in the middle-to-late 1980's could be producing as much as 20 million tons. Minor producers such as Argentina and Paraguay could increase production significantly, but obviously from a relatively low base. However, if most of the production increase moved into export, the gain in total meal exported would be significant. In the United States, the level of production of soybeans up to the present has largely hinged upon the corn/soybean and cotton/soybean price ratios.

World Production of Protein Meals, 1972-76

Type	Amount	Share of total
	Mil tons	*Percent*
Soybean	37.7	59.8
Fish	5.8	9.1
Peanut	4.4	6.9
Sunflower	3.5	5.5
Cottonseed	7.0	11.1
Rapeseed	2.8	4.5
Other	1.9	3.1
Total	63.1	100.0

Barring a breakthrough in soybean yield levels, the demand for meal and oil and the resulting demand for beans vis-a-vis the demand/supply situation for the competing crops will be the major factor in levels of future soybean production. However, prospects for increased levels of bean yields appear quite favorable. Greater specialization in soybean planting and harvesting machinery, as well as possible gains from improved cultural practices such as folier fertilization, may increase soybean yields prior to any breakthrough in plant breeding research.

Overall, soybean meal production has been climbing on the average over the last decade at the absolute rate of over 2.0 million tons. The relative rate of increase is in excess of 7.2 percent and the relative rate of increase in total protein meals production is about 4.5 percent. These rates of gain should be sufficient to take care of the requirements of an expanding world livestock industry, although periodic tight supply situations such as those of 1973 and 1977 will probably recur until such time as significant gains in soybean yields are achieved.

There is an important element in looking at the future requirements for oilseed meals by the European animal industry: the price relationships of cereals and protein meals. A rapid expansion of commercial compounding provided an opportunity to take full advantage of these price considerations, but growth of oilseed meal consumption takes on the characteristics of a one-time shift in growth of demand.

What are the most likely trends in the demand for animal products and resulting feed requirements and the availabilities of key feed ingredients?

In summary: Some of the countries in northwestern Europe seem to be approaching a stage where—given current market structures and farm support policies—a rise in the consumption of the more expensive meats, that is, the red meats and particularly beef and veal, depends upon the effect of increasing population. This does not appear to be true for poultry meat consumption, where the product has a relative price advantage and where per capita consumption, despite a substantial annual growth rate over the last decade, has the potential for further expansion.

Social and economic policies of European governments will probably lead to real income growth in the lower range of income groups that is somewhat higher than real growth for the total economy. This should provide some stimulus to meat consumption. However, it does not seem likely that rates of national income growth will be as stimulative as in the 1960's.

On balance, it is difficult to see in the decade ahead a rate of growth in animal product consumption that is as high as in the past decade. Cereal requirements for feed usage, which have had a modest growth rate in the past, would appear in for an even more modest growth rate in the future.

Further expansion of commercial compounding will probably expand the requirements for feed ingredients other than cereals. This is a further depressant on the feeding of cereals.

I foresee no problems with feed ingredient availabilities, especially the cereals. Soybean meal supplies may be tight from time to time, but the European compounding industry can readily adjust, although it is a cost-increasing factor in the short term. However, I believe that soybean supplies from non-U.S. origins will continue to expand and I am rather optimistic that U.S. soybean yields will advance to significantly higher levels in the next decade.

Although this analysis is not too optimistic regarding future growth prospects of European animal production, the European compounding industry has enjoyed a decade and a half of extremely vigorous growth. That growth may slow over the coming decade, but continued growth there will be. □

Soggy Crackers? Call 'Biscuit Man'

When the crackers are soggy or the cookies bad and they don't know why, bakery managers in the Far East are likely to call on Hugh Bright in Singapore for advice. He is a "biscuit man"—a consultant for Western Wheat Associates, U.S.A., which represents U.S. wheat producers in that region as a market development cooperator with the Foreign Agricultural Service.

Bright works as a troubleshooter for bakeries that make crackers, cookies, and similar products using flour milled from U.S. wheat, and advises in construction and operation of new biscuit factories.

Servicing customers is an important part of U.S. foreign market development, and this is particularly true of wheat export promotion in the Far East, where Western-type baked goods and baking techniques are relatively new and in some areas not known at all.

From his Singapore base, Bright regularly covers 11 countries, whose imports of U.S. wheat and flour last fiscal year were worth $1.65 billion, about one-third of total U.S. exports of these commodities.

The countries are South Korea, Japan, the Republic of China, the Philippines, Hong Kong, Singapore, Indonesia, Malaysia, Thailand, Sri Lanka, and India. This year Pakistan will be added to the list.

For the past 4 years, Bright has been making one trip a year to assist bakeries in Central and South America for Great Plains Wheat, Inc., a USDA market development cooperator servicing the Western Hemisphere.

Bright, a British citizen, has spent his entire working life in the biscuit business. He joined Wheat Associates in 1971 after having managed a biscuit factory in Manila since 1960. □

Clockwise from top left: In Japan, 'Biscuit Man' Bright feeds water and enzyme to dough during trial mixing of crackers; dough ready to be passed through rollers and laminated; dough is passed through rollers, folded, and passed through again to make it light and tender; after baking, Bright checks finished product.

USSR Expects Bumper Grain Crop, Other Crop Prospects Mixed

By Fletcher Pope, Jr.
and Judith G. Goldich

A bumper grain crop of 225 million tons is in prospect for the Soviet Union, according to USDA's July 8 estimate of that crop.

Previously, the Department had indicated the USSR's grain goal for 1977 of 213.3 million tons was probable. Last year's crop of 223.8 million tons was the alltime record, exceeding the previous, 1973, high by 1.3 million tons.

Other crops also appear to be doing quite well, although the cotton crop may have been damaged by heavy rains in May and early June and the June 3 earthquake in Kirgizia.

Soviet press reports likewise indicate fairly good prospects so far. On June 14, for instance, the Soviet central press reported the spring seeding plan had been successfully completed, with 151 million hectares planted in all, compared with 155 million in 1976. Soviet grain area is estimated at 130 million hectares, about 2 million larger than in 1975 and 1976, with the area of both winter grains and spring grains probably at a 10- to 12-year high.

These final planting results came as generally favorable weather in May allowed for "catch up" in the European USSR, where field work was hampered in April by cool, rainy weather. And rains during the second 10 days of June alleviated dry conditions that had been retarding crop development in the Volga and Urals regions.

This year, European USSR has enjoyed abundant rainfall. Conversely, precipitation in much of Asiatic USSR has been below average and temperatures there have been running well above normal. As a result, moisture supplies in Asiatic USSR (the Urals region, Kazakhstan, and Western Siberia) fell from a relatively good level about a tenth above normal at the end of March to a deficit roughly a fourth below normal by June 20.

At the beginning of the 1977 growing season, an early spring favored crop prospects throughout the USSR. Temperatures in European USSR averaged 3° -4° C above normal during February, March, and early April, while similar warm temperatures prevailed in Asiatic USSR beginning in March. As a result, spring seeding got off to an early start, with fieldwork well ahead of average in March and early April.

Weather during the remainder of April, however, was generally rainy and cool in European USSR. Precipitation there averaged about 65 millimeters (2.5 inches) in April, or almost 25 millimeters above normal.

Also, temperatures in southern parts of European USSR generally averaged 1° to 3° C below normal during the second half of April.

This cool, wet weather slowed spring planting markedly in European USSR. The area planted to spring crops by April 11, 1977, was about equal to the average planted by the same dates in 1972-76. Planting then began to lag, however, dropping 2.6 million hectares behind the 1972-76 average on April 18 and 8 million hectares behind the average on April 25 and holding at that level through May 2.

This lag represented about 3 days at the average seeding rate achieved in the 1972-76 period.

The lag behind the 1972-76 average in seeding of small grains and pulse crops was only 2-3 million hectares, or 1.5-2 days of seeding at the average rate for the period. Delays in planting corn were the most serious, but early plantings of sunflower, sugarbeets, and potatoes, also were slower than normal.

Part of the lag in corn planting was attributable to a planned reduction in corn area from an average of 21 million hectares in 1972-76 to 18.4 million in 1977. The planned area of corn for harvest as grain was reduced by a third to 3 million hectares. This decline reportedly was the result of less land available because of greater survival area of winter grains and also, possibly a shortage of good-quality cornseed due to the poor 1976 corn growing and harvesting conditions.

Sunflower planting likewise got off to a slow start in 1977, with only one-third of the usual area seeded by April 18. Planting continued well below normal through April to May 2, when 2.2 million hectares had been planted compared with the 1972-76 average of more than 3.3 million.

Warm, dry weather during the first half of May resulted in increased seeding rates. By May 16, 1977, the total area planted to spring crops in the USSR equaled the aver-

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USSR: Spring Seeding Progress, 1977 Compared with 1972-76 Average

[In million hectares]

Date	All spring crops			Small grains and pulses			Other groups		
	1977	1972-76	Difference	1977	1972-76	Difference	1977	1972-76	Difference
April 4 . . .	10.2	(1)	(1)	6.2	(1)	(1)	4.0	(1)	(1)
April 11 . .	17.4	17.5	-.1	9.9	(1)	(1)	7.5	(1)	(1)
April 18 . .	26.7	29.3	-2.6	16.4	(1)	(1)	10.3	(1)	(1)
April 25 . .	38.7	46.4	-7.7	24.7	27.8	-3.1	14.0	18.6	-4.6
May 2 . . .	56.3	64.2	-7.9	36.1	38.1	-2.0	20.2	26.1	-5.9
May 9 . . .	79.6	81.4	-1.8	49.2	48.2	1.0	30.4	33.2	-2.8
May 16 . .	99.7	99.4	.3	61.0	59.1	1.9	38.7	40.3	-1.6
May 23 . .	125.5	120.7	4.8	79.9	74.4	5.5	45.6	46.3	-.7
May 30 . .	144.7	139.1	5.6	94.0	87.8	6.2	50.7	51.3	-.6

[1]Not available.

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age area planted by that date in 1972-76. In fact, the area sown to small grain and pulse crops by mid-May was somewhat larger than the 1972-76 average for that date.

The improved weather in the first week of May also permitted the Soviets to plant an impressive 1.8 million hectares of sunflowers—more than had been planted in any recent 1-week period. Planting was essentially completed by mid-May, with only about 100,000 hectares of the more than 4.6 million-hectare total remaining to be planted.

Although much of the sunflower crop was planted 10 days to 2 weeks later than normal, warm, sunny weather through the remainder of the season may offset the delay. The Soviets plan to produce 7.5 million tons of sunflowerseed in 1977, compared with 5.2 million in 1976.

Sugarbeet planting had caught up to normal by the first of May after having gotten off to a slightly slower start than usual. Then, rapid progress in the first half of May resulted in the planting of 3.7 million hectares by May 16, essentially completing sugarbeet planting 1-2 weeks earlier than in preceding years. The sugarbeet procurement goal for 1977 has been set at a record 88.5 million tons, compared with the previous peaks of 84.2 million and 85.2 million in 1968 and 1976, respectively.

Potato planting also got off to a slow start in April, but by mid-May the work had caught up with the 1972-76 average. Vegetable planting, on the other hand, began at the normal time and remained about on schedule throughout the planting season.

The warm, relatively dry weather in Asiatic USSR aided fieldwork and spring seeding—the important spring wheat crop is seeded during the second half of May in most of Northern Kazakhstan and in Western Siberia. And total Soviet sowings of grain and pulse crops increased by about 35 million hectares during the last half of May, for a daily rate that was in excess of 2 million hectares.

Cotton seeding got off to an early start in Soviet Central Asia, with planted areas remaining well above the 1972-76 average seeding rates throughout the planting season. Total planted area reached 2.97 million hectares, a record level.

However, heavy rain and floods in late May and again in mid-June reportedly damaged some of the planted cotton in parts of Kirgizia, Tadzhikistan, and Uzbekistan. A sharp earthquake on June 3 may also have damaged cotton areas in southwestern Kirgizia. Similar floods in 1976 forced the Soviets to reseed part of the cotton area, but earthquakes that year had little effect on the final crop.

The Soviet target for cotton production in 1977 is 8.3 million tons. □

Continued from page 4

Agriculture in Sudan

pects to account for 20 percent of total Arab sugar imports, 19 percent of the meat imports, and 42 percent of the Arab countries' vegetable oil imports.

To achieve these goals, Sudan has devised a twofold production strategy: First, introduce new crops and necessary technologies and, second, expand production of locally grown crops to new areas with ecological conditions similar to traditional production zones within the country.

In the second group are sugar, tobacco, rice, coffee, and tea. All of these crops have been grown in Sudan, at least on a small scale. However, knowledge of production and technology specifically suited to Sudan is needed. Thus, the country could be expected to benefit from U.S. experience in transplanting technologies and from production results in east Africa and Egypt, which have ecological zones similar to those found within Sudan.

While it faces competition from Europe and Japan, the United States has a certain advantage over its competitors in supplying technology to Sudan.

According to the U.S. Department Commerce in its annual report of March 31, 1975: "Since capital-intensive agriculture is precisely where the United States excels (and the Sudanese know it) there is a great potential for the sale of United States equipment and know-how in this field to Sudanese importers."

Past economic development results and current agricultural planning policies suggest that Sudan is capable of a breakthrough in development. The Government has enacted legislation that creates a climate conducive to private investment, both domestic and foreign. In addition, social organization and policy institution have changed considerably since the Addis Ababa agreement in 1972, which ended the armed confrontation between North and South Sudan. □

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World Coffee Crop Rises, Prices Down Slightly

The 1977/78 world coffee crop is expected to rise by 14 percent above the low 1976/77 outturn, according to the first estimate this year of the Foreign Agricultural Service. Exportable production also will be up.

Total production is set at 70.4 million bags (60 kg each), compared with 61.5 million bags in 1976/77. However, this gain is still 9 percent less than average production during 1974/75-1975/76.

The increase in the 1977/78 output is largely the result of a partial recovery in the Brazilian crop to 17 million bags—up about 80 percent from the 1976/77 production, but still well below pre-1975-frost levels of around 25 million bags.

Exportable production for 1977/78 is estimated at 52.8 million bags, compared with 44.3 million bags in 1976/77 and 55.4 million in 1975/76. (Exportable production represents total harvested production less estimated domestic consumption in producing countries.)

Some increase in 1977/78 is expected in most North American producing countries, notably Mexico, where output is forecast about one-fifth higher than in 1976/77. In South America, the big increase is in Brazil, but the Colombian crop is expected to be up about 500,000 bags from the previous year's total.

African production for 1977/78 is estimated 5 percent below the 1976/77 output. This is mainly the result of poor prospects for the Ivory Coast, the largest coffee producer in Africa. Small increases are expected in principal countries of Asia and Oceania.

U.S. imports of green coffee during January-April 1977 totaled 7.4 million bags valued at $1.78 billion, compared with 7.4 million bags valued at $733 million in the first 4 months of 1976. The unit import value for April 1977, f.o.b. basis, was $2.15 per pound compared with $1.97 in March and 83 cents a pound in April 1976.

Preliminary data placed U.S. green coffee stocks held by importers, roasters, and dealers at 3.52 million bags on March 31, 1977, compared with 3.19 million a year earlier. Similarly, green coffee roastings have been estimated at 4.8 million bags through March 1977, down 15 percent from roastings during January-March 1976.

The International Coffee Organization (ICO) composite price for green coffee averaged $2.96 per pound in May, down 11 percent from $3.33 in April, with importers largely withdrawn from the market. The ICO price was $2.85 on May 13, moved up to $3.05 as of May 20 on initial reports of "frosts" in Parana, Brazil, before declining to $2.76 by June 3, after it was confirmed that the cold wave did very little damage to Brazilian coffee trees. As of June 24, the ICO composite price was $2.71, compared with $1.49 per pound a year earlier. □

West Germany Imports Less U.S. Leaf

West German imports of U.S. tobacco in 1976 continued to decline. Imports of 36,300 tons were down nearly one-fifth from 1975's 44,800 tons, as the U.S. share of West Germany's total imports fell to 22 percent. Actual use of U.S. tobacco closely paralleled the fall in imports.

The outlook for 1977 is equally grim: U.S. exports to West Germany so far this year on both fiscal and calendar bases are virtually unchanged from those of a year earlier.

Early indications are that German manufacturers plan to cut their use of U.S. tobacco by as much as 15 percent (5,000 tons) in 1977. If these indications are borne out, the United States in 2 years (1976 and 1977) will have lost the equivalent of nearly one-fourth of its 1975 market level in West Germany. □